

**ABSTRACT OF THE DISCLOSURE**

An improved trileaflet mechanical heart valve **100** can include an improved leaflet **110**. The valve **100** and leaflet **110** provide improved flow characteristics, minimize blood clotting behind the leaflets, and provide more natural opening and closing times. The valve can include a valve housing **105** which contains pivot/hinge mechanism (**130**, **200**, and **300**) for allowing rotation of and retention of the leaflets **110**. The valve housing **105** can also be solid or include windows or openings **125** which allows for washing of the pivot/hinge mechanism (**130**, **200**, and **300**) as well as the leaflets **110**. The housing **105** preferably has a top surface that is scalloped shaped when viewed from the side such that the wetted area is reduced. The novel leaflets **110** are airfoil-like having a complex S-shaped curvature on their outer surface. This novel geometry, when combined with the location of the leaflet's pivot axis, causes a tendency for the leaflets **110** to rotate towards the closed position. Thus, the leaflets **110** begin to close much earlier than a conventional leaflet and are substantially closed before the flow reverses, similar to the function of a natural valve.